Technical Report #9

Swan River Basin Ecological Classification

Overview

Effective land management requires an understanding of climate, geology, vegetation patterns, landforms, soils, and streams. Ecological classification provides a framework and descriptive attributes from which interpretations regarding habitats and effects of land uses can be made. The purpose of Technical Report #9 is to apply the classification to the Swan River Basin in northwest Montana. This classification can be used as a tool to assess the ecological potential and the existing condition of riparian habitat.

Key Points

The table below identifies the levels of hierarchy used to classify the Swan River Basin.

Ecoregion	
Geologic District	
Subsection	
Uplands	**Bottom-Lands**
Landtype Association	Valley-Bottom Landtype
Landtype	Riparian Landtype
Habitat Type	
Vegetation Type	

For more information about the definitions of each of these classification levels, see Technical Report #4, *An Ecological Classification Integrating Uplands and Riverine/Riparian Habitats Applied to the Thompson River Basin, Montana.*

Supporting Technical Information

The Swan River Basin falls within a single **ecoregion** (Northern Rockies) and **geologic district** (metasedimentary). The following three **subsections** were defined by geologic structure:

1. Alpine glacial sedimentary scarp slope
2. Alpine glacial sedimentary dip slope
3. Continental glacial sedimentary valley

Eleven **landtype associations** were identified by the Flathead National Forest. These landtype associations are groups of related **landtypes** that are distinguished by landforms, soil patterns, and climax plant communities. A total of 46 landtypes were identified.

Twelve **major habitat types** and 26 **minor habitat types** were identified from previous research. **Riparian landtypes** are defined by valley-bottom gradient, dominant streambed materials, and dominant vegetation community type. Riparian landtypes were mapped and described for Forest Service lands in the Flathead National Forest. In a cost-share agreement with Plum Creek Timber Company, the Flathead National Forest extended the riparian landtype mapping to private lands in the Swan River Basin and to the Mission Mountain Wilderness.

Conclusion and Implications

A Geographical Information System (GIS) was used to compile the land classification on map layers, plot maps, and create map

data summaries. Maps, descriptions, and data summaries are provided in this technical report for each hierarchical level.

Ecological classification is a tool to organize landscapes into areas with distinctive ecological potential. In the Swan River Basin, results of the classification are being used to group upland and riverine/riparian habitats, assess the similarity of watersheds, screen for landscape hazards, and provide a foundation for more intensive watershed analysis.